

A NEW SPECIES OF *PROTOTHEORA* FROM MALAWI, WITH ADDITIONAL
NOTES ON THE DISTRIBUTION AND MORPHOLOGY OF THE GENUS
(LEPIDOPTERA: PROTOTHEORIDAE)

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Abstract.—A new species, *Prototheora malawiensis*, of the endemic southern African family Prototheoridae is described and illustrated from the Mulanje Massif of Malawi. This constitutes only the second species to be collected outside of South Africa, the first being *Prototheora angolae* Davis from Angola. Also noted are additional collecting records for *Prototheora cooperi* Janse, *P. corvifera* (Meyrick), *P. petrosema* Meyrick, *P. quadricornis* Meyrick, and the first record from Cape Province, South Africa, of *Prototheora parachlora* Meyrick.

Key Words: Africa, biogeography, Hepialoidea, South Africa

Prior to my recent revision of the hepialoid family Prototheoridae (Davis 1996), this family was known only from South Africa, with all but *Prototheora parachlora* (Meyrick) restricted to Cape Province. In that report I described *P. angolae* from the central plateau region of Angola, as well as a second species, *P. drackensbergae* Davis, from Natal Province, South Africa. In October 1996, Woffram Mey of Humboldt Universität, Berlin, collected (by sweeping) an undescribed *Prototheora* on the Mulanje Massif of southern Malawi. The moth was observed flying rapidly in the afternoon over a grassy meadow at an elevation of 2,000 meters. The discovery of this species further extends the range of this family in southwestern Africa and brings the total number of described species to 12. Description of this species is necessary at this time in order to include it in a synoptic catalogue of the family soon to be published (Davis, in press).

Also noted herein are additional records of several previously described species

from Cape Province, including the first Cape record of *P. parachlora*, a species previously known only from the holotype, collected in Natal.

Prototheora malawiensis Davis,
new species
(Figs. 1–4)

Male (Fig. 1).—Wing expanse 20 mm. *Head:* Vestiture consisting of broad (over frons and vertex) to narrow (between antennae), gray, white-tipped scales with minutely serrated apices; scales over occipital area longer, piliform. Antenna $\sim \frac{1}{3}$ the length of forewing, 34-segmented; scales of scape slender, reduced in size, and same color as head; flagellum dark brown, naked except for dense pubescence of pale sensilla. Labial palpus same color as head, long and porrect; length $\sim 2.5 \times$ eye diameter.

Thorax: Scales of dorsum similar in color to head, mostly with slender bases; metascutum with scattering of long, pale, piliform scales. Venter mostly naked, with long, white, piliform scales. Forewing light



Fig. 1. Adult, *P. malawiensis*, wing expanse 20 mm.

gray, with scattered irroration of fuscous to black scales; a prominent longitudinal, broken, white band from wing base to apex, widest at distal fourth beyond apex of discal cell; another linear concentration of dark fuscous scales along lower border of distal fourth of white band; fringe mostly white, with scattered, longer, gray scales. Hindwing uniformly light brownish gray. Foreleg gray dorsally, finely irrorated with slender, white-tipped scales; with less irroration ventrally, more brownish over venter of foreleg and most of midleg. Hindleg uniformly light brown.

Abdomen: Predominantly gray, with an irregular, narrow, longitudinal band of white along midventer.

Genitalia (Figs. 2–4): Tergal plate a relatively small, triangular tergite devoid of processes. Pseudoteguminal plates moderately broad at base, articulating laterally with lateral arms of vinculum; pseudoteguminal arms slender, elongate, complex with secondary, spinose branching (Fig. 4) including a short basal spur, and an inverted T-shaped, subapical spinose branch from venter of main arm. Suspensorium weakly developed, with slender lateral arms extending to pseudoteguminal plate. Copulatory pouch well developed, approximately

equal in length to basal third of valva including saccular lobe. Trulleum with deep ventral groove, the lateral edges of which equal in length to saccular lobe. Valvae moderately broad at base, with a prominent, setose saccular lobe protruding caudally and a greatly extended, spinelike cucullar arm projecting dorsally at right angle to basal third of valva. Vinculum broadly rounded, short, approximately equal to saccular lobe in length.

Female.—Unknown.

Holotype.—♂; Malawi: Mulanje Mts., Chambe Hut → Lichenye Hut, montane meadows, 2000 m, 21 Oct 1996, leg. Mey and Nuss, slide DRD 4114 (MNHU).

Distribution.—Known only from the type locality, a montane site in extreme southern Malawi, 16°03'S/35°31'E.

Remarks.—The male genital morphology of this species is among the most distinctive of the genus. It is the only species of *Prototheora* discovered thus far to lack tergal processes from the tenth tergum. The pseudoteguminal arms are the most complex of any species in possessing secondary and tertiary branches of spinose processes. The valvae, although highly modified, bear some resemblance to those of *P. drackensbergae* in the development of a setose sac-

cular lobe. In addition to adding to our knowledge of the biogeography of this family, the discovery of this species further indicates the great morphological diversity that exists within this group, as well as the great need for more fieldwork.

Prototheora cooperi Janse

Prototheora cooperi Janse 1942: 69.—Davis 1996: 418.

New records.—SOUTH AFRICA: Cape Province: Du Toits Kloof, 1 ♂, 1 ♀, 6 Apr 1989, H. Geertsema, slide USNM 32309 (USEC, USNM). Stellenbosch, Jonkeshoek FR: 1 ♂, H. Geertsema, (USEC). Voëlvlei Dam: Gouda: 2 ♂, 23 May 1987, H. Geertsema, slide USNM 31933 (USEC, USNM).

Prototheora corvifera (Meyrick)
(Figs. 5–6)

Metatheora corvifera Meyrick 1920: 315.—Philpott 1926: 726; 1928: 94.—Janse 1942: 74.—Vári 1958: 75.

Prototheora corvifera (Meyrick): Davis, 1996: 425.

Because the female of this species was previously unknown, a description of that sex can now be provided.

Female.—Wing expanse 19–21 mm. Generally paler, more gray in color than male. Head with vestiture of moderately broad to slender gray scales tipped with white. Antenna 28–29-segmented, ~ ¼ the length of forewing. Labial palpus porrect as in male, similar in color to head; scales rough, slender at base of palpus, becoming more piliform apically. Thorax similar to head in color. Forewings mostly denuded in all four females examined, but generally pale gray with densely scattered dark gray scales. Hindwing pale gray, nearly white. Abdomen pale grayish white.

Genitalia (Figs. 5–6): Dorsal plate with a broad, shallow median notch. Sternum IX with lateral lobes well developed, ~ half the length of conjugal process; apex broadly rounded, subtruncate (Fig. 5). Median conjugal process broadly triangular; length

about 0.75 its basal width. Antrum moderately enlarged, membranous.

New records.—SOUTH AFRICA: Cape Province: Cape Town, Table Mountain: 2 ♂, 25 Jan 1995; 1 ♂, 6 Feb 1995; 6 ♂, 3 ♀, 7 Feb 1995, slides USNM 31932, 32310; 5 ♂, 11–12 Feb 1995, H. Geertsema (USEC, USNM); vic. Cape Town, Table Mountain, 1,000 m: 1 ♀, 2 Feb 1995, slide DRD 4060; 14 ♂, H. Geertsema, slide USNM 32025 (USEC, USNM).

Remarks.—The female genitalia of this species is most similar to that of *P. serruligera*, particularly in the triangular form of the conjugal process, with that of *corvifera* being broader at the base. In *serruligera* the length of the process is approximately 2.5× its basal width, compared to 0.75 in *corvifera*. The lateral lobes of *serruligera* are also more reduced and possess more acute apices.

Prototheora parachlora (Meyrick)

Metatheora parachlora Meyrick 1919: 229.—Janse 1942: 73.—Vári 1958: 75.

Metatheora paraglossa Janse 1942: pl. 62, fig. 2 (misspelling).

Prototheora parachlora (Meyrick): Davis, 1996: 411.

New records.—SOUTH AFRICA: Cape Province: Tsitsikama State Forest, Goesabos, 3 ♂, 1–13 Mar 1983, Scoble and Kroon, slide USNM 32026 (TMP, USNM).

Remarks.—Specimens from the Transvaal Museum previously unavailable for study included 3 males of this species collected in the Tsitsikama State Forest, a coastal, predominantly temperate, evergreen forest located in southeastern Cape Province. *Prototheora parachlora* was known only from the holotype, collected 27 January 1917 in the Karkloof Forest of Natal.

Prototheora petrosema Meyrick

Prototheora petrosema Meyrick 1917: 19; 1919: 229; 1920: 314.—Philpott 1928: 94.—Janse 1942: 67.—Vári 1958: 75.—Davis 1996: 416.

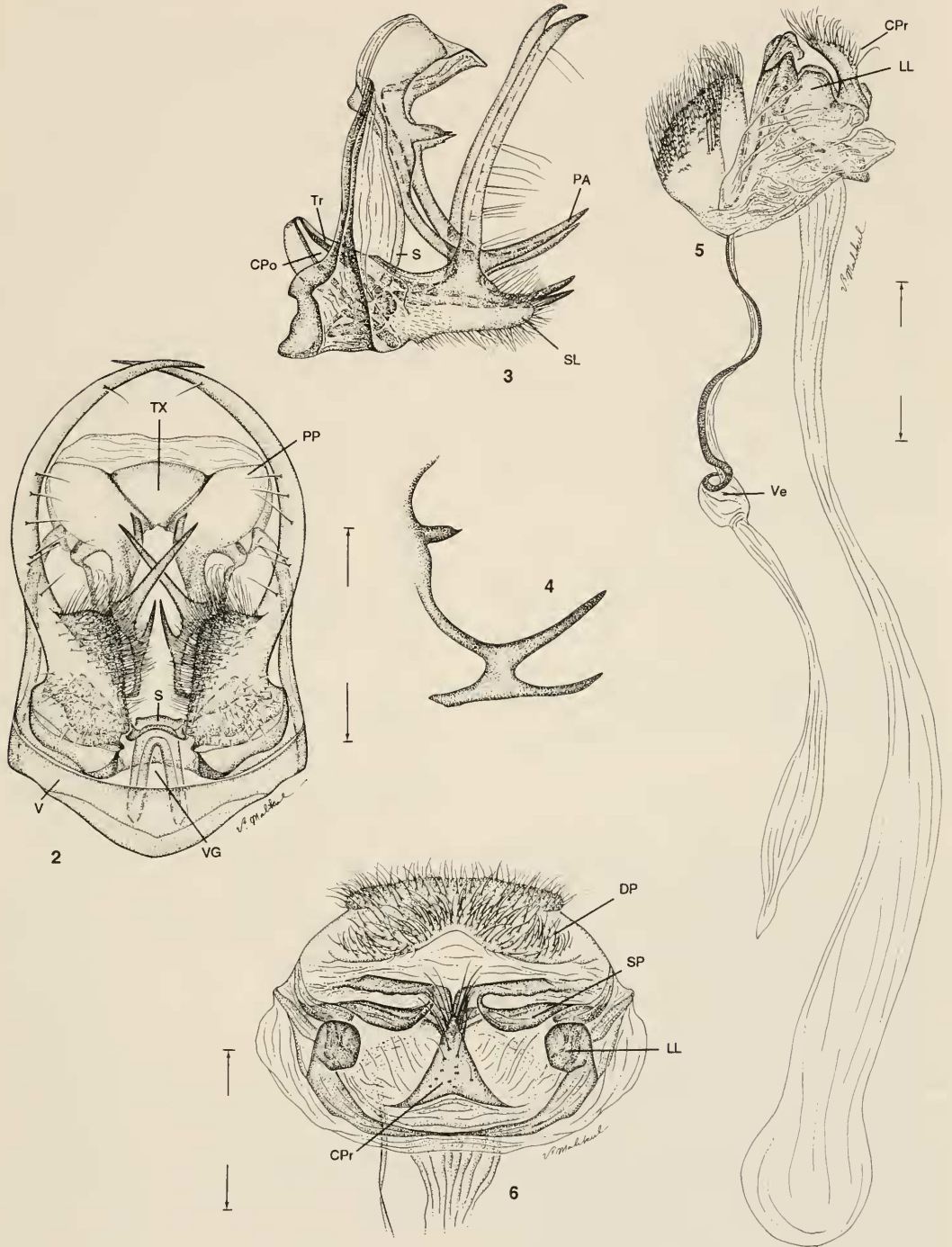


Fig. 2-6. Genitalia. 2-4, Male *P. malawiensis*. 2, Ventral view. 3, Lateral view. 4, Lateral detail of pseudoteguminal arm in Fig. 3. CPo, conjugal pouch; PA, pseudoteguminal arm; PP, pseudoteguminal plate; S, suspensorium; SL, sacculus lobe of valva; Tr, tritellum; TX, tergite of tenth abdominal segment; V, vinculum; VG, ventral groove of tritellum. Scale = 0.5 mm. 5-6, Female, *P. corvifera*. 5, Lateral view. 6, Caudal view. CPr, copulatory process; DP, dorsal plate (tergite IX + X); LL, lateral lobe; SP, subanal plate; Ve, vesicle of ductus spermathecae. Scale = 0.5 mm.

Prototheora monoglossa Meyrick 1924: 80.—Davis 1996: 416.

New records.—SOUTH AFRICA: Cape Province: Citrusdal, Agterland: 1 ♂, Mar 1995, H. Geertsema (USEC). Hermanus, 1 ♂, 1 ♀, 12 Mar 1988, H. Geertsema, slide USNM 31934 (USEC, USNM). Stellenbosch: 1 ♂, 9 Apr 1996, 2 ♂, 18 Apr 1991, 1 ♂, 10 May 1994, H. Geertsema (USEC); 1 ♂, Feb 1955, H. Rossouw (USEC). Stellenbosch, Jonkershoek FR: 5 ♂, 20 Apr 1990, slide USNM 32024 (USEC, USNM); 2 ♂, 20 Apr 1993 (USEC); 1 ♀, 20 Apr 1993, died 26 Apr 1993, coll. at light, laid eggs 21–26 Apr 1993, ref. egg 001; 1 ♀, 20 Apr 1993, died 27 Apr 1993, coll. at light, laid eggs 21–26 Apr 1993, ref. egg 002, H. Geertsema (USEC).

Prototheora quadricornis Meyrick

Prototheora quadricornis Meyrick 1920: 315.—Janse 1942: 72.—Vári 1958: 75.—Davis 1996: 430.

New record.—SOUTH AFRICA: Cape Province: Citrusdal, Agterland: 1 ♂, Mar 1995, H. Geertsema, slide DRD 4115 (USEC).

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- MNHU Museum für Naturkunde, Humboldt-Universität, Berlin, Germany.
 TMP Transvaal Museum, Pretoria, South Africa.
 USEC University of Stellenbosch, Entomological Collections, Stellenbosch, South Africa.
 USNM Collections of the former United States National Museum, now deposited in the National Museum of Natural History, Smithsonian Institution, Washington D.C., USA.

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